

must be protected and, to the extent possible, enhanced. The WSR anticipates (and the case studies show) that specific OR values and the actions used to protect them vary from river to river based on existing and desired conditions, so professional judgments about impacts, standards, and management actions are appropriate and important. These judgments are best understood if they are made “transparent.”

- ***Decisions require rationales and documentation of evidence/analysis.*** Agency discretion in defining OR values, choosing actions to protect them, or determining whether other uses would “substantially interfere” requires evidence, analysis, and documentation (Feldman, McLaughlin, and Hill, 2005). Plans that rely on incomplete data and analyses have been overturned (Riverhawks v. Zepeda, 2002; Friends of Boundary Waters Wilderness v. Bosworth, 2004).
- ***Trade-offs, legislation, and management solutions.*** Visitor management decisions often involve trade-offs among the types, quantity, and quality of recreation opportunities. Legislation such as the WSR or wilderness acts provide a protective framework for management, but these acts do not, absent specific direction, decide specific priorities. Resource managers generally try to develop solutions that balance the interests of multiple groups by considering resource characteristics, use patterns, or other variables. When this is not possible, decisions should be explicit about what is to be provided (and what is foregone). Such decisions may not please all groups, but they are made “by design” rather than “by default.”

3. Recreation Opportunities

This chapter summarizes existing and potential recreation opportunities on the Upper Chattooga. This includes the “outstandingly remarkable” (OR) recreation values described in the pre-designation Wild and Scenic Study Report (USFS 1971), a 1996 analysis of OR values (USFS, 1996), and integrates information about recreation attributes from 2005 public meetings and recreation fieldwork. For boating and fishing opportunities, it includes assessments of recreation attributes from the 2007 expert panel fieldwork.

Existing opportunities

The following list describes the major recreation opportunities provided in the Upper Chattooga corridor at the present time. Although some users may participate in more than one activity during a trip; the goal here is to characterize distinct opportunities.

General frontcountry recreation at four bridges

Four major roads/highways cross the Upper Chattooga, offering access to “general frontcountry riverside recreation” opportunities that may include vehicle-based sightseeing, short walks, swimming, or picnicking. By definition for this analysis, frontcountry recreation occurs within ¼ mile of the access roads/bridges. These types of recreation activities were mentioned in the 1971 study report and the 1996 analysis of OR values, but neither provided details.

- Sliding Rock near Grimshawes Bridge provides swimming opportunities during warmer months; the site is particularly popular with family groups. Important features include water quality, scenery, a functioning “sliding rock,” the pool below the cascade, and small beaches for relaxing. In general, this is a “social recreation” setting, and solitude is less important.
- The Bull Pen Bridge provides road-based views of the cascades at the bridge; scenic viewing is probably the main frontcountry attraction of this area. There are several swimming holes and sunning/relaxation sites accessible during warm and low water periods (reached by scrambling down to the river from the designated trail, or by traveling in-channel). This location is more remote than Sliding Rock, and solitude is probably more important.
- The Burrells Ford area features an array of frontcountry recreation opportunities, including picnicking, sunning/relaxing, swimming (during warmer months), and short walks. Key attributes include water quality, scenery, and the availability of upland sites near wading/swimming or angling locations. Camping, hiking, and angling opportunities from this site are discussed below. In warmer months when use is higher, this area offers more of a “social recreation” setting, with solitude probably less important.
- The Highway 28 Bridge area is used less than the others for general frontcountry recreation; this area is more popular for frontcountry angling or as the starting point for backcountry angling and hiking. The bridge offers scenic views of this lower gradient reach and there are some swimming holes (one has a rope swing) popular in summer months.

Frontcountry angling at four bridge areas

By definition for this analysis, frontcountry angling occurs within ¼ mile of the four bridges. The 1971 study report and 1996 analysis of OR values discuss the importance of trout and warm-water fisheries on the Chattooga (a biologic OR value), and well as angling for those species (a recreation OR value). Neither report provides detailed information about frontcountry fishing,

although the 1996 analysis notes that some frontcountry angling opportunities were lost when roads to the river were closed in the mid-1970s.

- Sliding Rock near Grimshawes Bridge provides a limited fishing opportunity. This NC reach is no longer stocked, and swimmers are often present from mid-morning through late-afternoon in summer. However, the area can be fished during cooler months or at dawn/dusk during summer. The remaining rainbow and brown trout (now a reproducing population managed as a wild fishery) are fished using flies, spinners, or bait.
- Frontcountry fishing is also limited near Bull Pen Bridge, which has more rapids and cascades than fishable pools and runs, particularly at high water. This NC reach is no longer stocked; remaining rainbow and brown trout populations are managed as a wild fishery.
- Burrells Ford probably provides the best frontcountry fishing opportunities on the river. This scenic reach is wide and shallow at most flows, with fishable runs and pools between riffles. Bait and spin anglers are more common here (fly anglers are more likely to travel farther than ¼ mile from the bridge); some anglers wade, while others fish from the bank.
- The area immediately upstream of Highway 28 provides a frontcountry fishing opportunity. This location has a more alluvial channel (lower gradient, fewer boulders and rapids) and features more “pastoral” scenery than the steeper forested landscapes upstream. Bait and spin angling occurs here; most fly anglers fish upstream. All bait and spin fishing in this reach occurs by regulation from May 15 through October 31st. The rest of the year falls under “Delayed Harvest” (DH) regulations (catch and release fishing) as discussed under “backcountry fishing” below.
- The frontcountry angling opportunities at Burrells Ford and Highway 28 depend on an active trout stocking program coordinated between the Georgia and South Carolina DNRs. “Put & take” trout fisheries have been developed on the river since the 1930s, although actual numbers of stocked fish (species, size, and locations) have varied. Since the late 1960s, the number of stocked trout has ranged from 25,000 (1973) to 194,000 (1986), with roughly similar proportions of rainbow and brown trout (Durniak, 1989).
- In recent years, South Carolina DNR truck stocking each May to October places roughly 40,000 rainbow and brown trout adults (9 to 12 inches in length) into the Chattooga at Burrells Ford, the mouth of Reed Creek to Hwy 28, and between Highway 28 and Long Bottom Ford. Georgia DNR and SCDNR work cooperatively with USFS to stock an additional 32,000 sub-adult rainbow and brown trout into the backcountry area from Burrells Ford downstream to the mouth of Reed Creek (see backcountry fishing below). Taken together, over 70,000 trout are stocked into the Chattooga River. (Rankin, 2007)
- Stocking has included rainbow and brown trout, but sampling shows that brown trout are more abundant. However, creel data suggest most caught fish (>70%) are rainbows, highlighting “conventional wisdom” that browns are harder to catch, and that rainbow provide the primary fishery for most anglers (Rankin, 2007).
- Compared to backcountry angling, frontcountry angling depends to a greater degree on catch-rates and harvest, while the scenery and social setting may be less important. However, no specific studies have assessed frontcountry/backcountry angler differences for the Chattooga.

Backcountry angling

By definition for this analysis, backcountry angling occurs on reaches farther than ¼ mile from the bridges. The 1971 study report and 1996 analysis of OR values describe its importance as a recreation opportunity, but provides few specific details.

- Backcountry anglers tend to target larger trout and are generally less interested in harvest than frontcountry anglers. Many practice catch and release fishing; higher proportions wade rather than fish from the bank, and use flies rather than spinning gear or bait. Some backcountry anglers specifically target larger wild brown trout (which are generally harder to catch).
- Important attributes include water quality and clarity, scenery, insect hatches, and a fishery with higher proportions of “wild” or “naturalized” fish (trout that have lived in the river for months or years, rather than recently stocked adults). Anglers who fish the Upper Chattooga backcountry also comment about its width, depth, and variety of fishable water (including riffles, runs, pocket water, and shoals). Most fishing on the Upper Chattooga appears to be flow-dependent, with ideal wading-based angling at low to medium flows. Chapter 7 provides additional discussion of flows and angling.
- Backcountry anglers tend to fish in small groups (1 to 4 anglers) and are generally interested in solitude (avoiding competition or encounters with other angling groups or other users) and a sense of remoteness (USFS, 1971). As with other backcountry users, they also value an environment with few signs of human use.
- Backcountry anglers usually hike along the river via designated trails, then drop down to fishing locations on “user trails.” User trails sometimes follow the river; anglers occasionally travel short distances in the channel.
- Most backcountry anglers take day trips, but a few camp at dispersed sites along the river or at Burrells Ford.
- The fishery from the *headwaters to Big Bend Falls* is managed as a “wild” trout fishery, although some stocking occurs at Burrells Ford downstream. The reproducing brown and rainbow trout in this reach are descendents of introduced fisheries (brook trout are the native trout in the basin, but exist only on smaller tributaries today). Helicopter stocking from Ellicott Rock (the end of North Carolina management) to Burrells Ford ended in 1975 with designation of the Ellicott Wilderness Area. Relatively fewer anglers target these waters (except at Burrells Ford itself) compared to downstream reaches.
- The fishery from *Burrells Ford downstream to Reed Creek* relies largely on helicopter stocking. Georgia DNR and SCDNR work cooperatively with USFS to stock 16,000 sub-adult (under 7 inches) rainbow and 16,000 sub-adult brown trout into this backcountry area (Rankin, 2007). About 1,000 of each species are over 12 inches.
- The fishery from *Reed Creek to Highway 28* (about 2.5 miles) is managed as a delayed harvest (DH) reach. From November 1st to May 15th, anglers must practice catch and release fishing with a single hook and artificial lure. DH stocking (part of the roughly 40,000 stocked for frontcountry angling, as discussed above) occurs just before the DH season, and stocked fish remain unharvested until the following summer. The stocked fish “naturalize” through the winter and become more challenging to catch.
- DH regulations attract more specialized trout anglers than summer stocking programs; the Upper Chattooga DH reach is one of five in Georgia, one of two in South Carolina, and one of 19 in North Carolina.
- Backcountry angling can occur year-round, but is best in spring, early summer, and fall. The DH reach is consistently used through the winter, even when temperatures approach freezing.

Day hiking

Hiking is a major recreation use in the Upper Chattooga corridor; this opportunity includes wildlife viewers, photographers, or others who use the trails for day trips. The 1971 study report documented some hiking use, but the only designated trail in the corridor at the time was 4 miles from Burrells Ford to Ellicott Rock. The 1976 plan included plans to develop additional hiking trails; some were conversions of old roads, while others were new trails (see Figure 2 on page 3). The 1996 analysis provided few additional details about these hiking opportunities.

- A network of designated trails in generally good condition provides access to a diversity of terrain and attractions in the corridor. Hikers can travel from near the headwaters (Whiteside Cove Road) to Highway 28, and the Bartram Trail continues along the river (or its ridges) downstream as far as Highway 76. There are 11 trailheads providing access to the upper river, allowing loop routes or visits to particular parts of the corridor. The highest use trailheads appear to be at Bull Pen Bridge, Burrells Ford, East Fork, and Highway 28.
- The most heavily used trails are from Burrells Ford to Ellicott Rock, the East Fork trail to the river from the fish hatchery, and the Foothills Trail from Burrells Ford to Highway 28. In total, there are 35.0 miles of designated trails in the Upper Chattooga WSR corridor.
- A network of user-created spur trails that are connected to designated trails provide access to fishing, picnicking, camping, or other recreation sites. There are currently about 19.3 miles of these user-created trails in the Upper Chattooga WSR corridor..
- Important hiking attributes include a sense of remoteness and spectacular scenery that includes forested ridges, rocky outcrops, mature forests, waterfalls and cascades in the river and on tributaries, birds and other wildlife, plants and wildflowers, and archeological sites (e.g., old home sites). Most hikers probably value the lack of motorized, mountain bike, and horse use on these trails (as specified in the existing plan).
- Hiking can occur year-round, but is more popular in spring, summer, and fall.
- Day hikers tend to travel in small groups (less than eight), although some larger “organized groups” (e.g., hiking clubs, boy scouts) sometimes visit. Most appear to prefer some solitude and a sense of remoteness, but higher densities on more popular trail segments can occur on weekends in summer and during fall color.

Backpacking/camping

Backpacking / camping is distinguished from day hiking by overnight use, but utilizes the same trail system. This was a minor use prior to the 1976 plan and subsequent trail development, although vehicle-based and more remote camping certainly occurred.

- Backpackers use the same trail system described above. In addition, the Bartram Trail connects to other trail networks in the region for long distance “through hiking.”
- There are 127 documented backcountry campsites in the upper river, with the greatest concentrations in the segments from East Fork to Burrells Ford and from Burrells Ford to Lick Log Creek. Chapter 5 provides additional information about the trail system and campsites.
- This total includes approximately 30 walk-in frontcountry campsites at Burrells Ford. This semi-developed campground (with pit toilets and water) once had electricity and was accessible by vehicles, but was converted to walk-in use after WSR designation.

- Backpackers enjoy attributes similar to those listed above for day hikers, but are probably more interested in solitude and a sense of remoteness, particularly at destinations (e.g., camps, fishing areas, or swimming holes). In general, they prefer to camp out of sight and sound of others.
- Campers at Burrells Ford appear more tolerant of higher density “social recreation” settings and commonly camp in sight or sound of several other parties (Cavin, 2004; see discussion of camp encounters in Chapter 6).
- Backpackers probably value few signs of human use or development, and the lack of motorized, mountain bike, and horse use.
- Backpacking occurs in seasons similar to day hiking, but may have even lower winter use.

Hunting

Hunting occurs in the Upper Chattooga corridor during a defined fall season, but use is apparently light and probably occurs along user-created rather than designated trails. Bear, deer, hog, and turkey are available game species, but none are thought to be abundant. Hunters are probably interested in solitude and the availability of game, as well as the remote and scenic setting. They are unlikely to interact with most other users.

Potential opportunities

Boating was allowed on the Upper Chattooga before 1976 (although use was rare), and it is considered a potential future opportunity for this analysis. The 1971 WSR study reported a Forest Service reconnaissance trip in a small raft from Grimshawes Bridge downstream to Highway 28, noting that boating provides the “best” access to some remote parts of the river (particularly because since many trails were undeveloped). The 1996 analysis of OR values did not provide specific information about boating in the upper river (which was and remains closed). The following provides additional information about boating opportunities based on existing documents and studies, fieldwork, and the expert panel fieldwork in January 2007. It distinguishes two types of potential boating opportunities:

- ***Whitewater-oriented boating*** refers to Class IV-V whitewater kayaking, canoeing, or rafting on the Upper Chattooga’s steeper segments by highly skilled boaters.
- ***Scenic-oriented boating*** refers to Class I-II opportunities on the lower gradient reaches that may be used for access to the area, boat- or tube-based fishing, or during “water play.”

Whitewater-oriented boating

This is the type of boating most likely to occur on the Upper Chattooga. Every bridge-to-bridge segment includes at least some Class IV-V rapids that require highly skilled boaters and specialized equipment. Some parts of these reaches can be described as “creek boating runs,” with gradients over 100 feet per mile and constricted rapids. On other segments, the boating is less creek-like, with multiple route options and a wider river.

- The 1971 WSR report noted that boating on the upper river could be arduous, with numerous portages. The fieldwork for that study was apparently conducted in a small “rubber raft” because participants did not feel that kayaks or canoes of the day were appropriate for the challenging rapids. Whitewater boats and skill levels have improved dramatically in the intervening years, and recent expert panel fieldwork suggests that several different craft could

be used on these reaches with sufficient flow, including hard shell kayaks, decked canoes, open canoes with floatation, multi-chamber inflatable kayaks, and small rafts and catarafts (generally under 12 feet long, paddled by 1 or 2 people). The boater panel did not believe the river would be runnable in larger rafts or rafts with more than two people.

- There are three potential whitewater-oriented boating reaches on the Upper Chattooga: (1) **Chattooga Cliffs** from Grimshawes Bridge or Norton Mill Creek confluence to Bull Pen Bridge; (2) **Ellicott Rock** from Bull Pen Bridge to Burrells Ford; and (3) **Rock Gorge** from Burrells Ford to Lick Log Creek confluence or Highway 28. The expert panel report (Berger 2007) provides descriptions of each reach. In general, Chattooga Cliffs provides the most creek-like whitewater boating opportunity (steeper gradient, more technical rapids), while the Ellicott Rock reach offers the most whitewater for its length. The Rock Gorge offers a longer trip with several good Class IV-V rapids, but also has longer stretches of flat water (and many Rock Gorge trips would include travel through the Class I Nicholson Fields reach too).
- Whitewater-oriented boating is a flow-dependent activity and generally requires moderately high flows on these reaches. With an unregulated flow regime (no dams or diversions), days with higher flows occur infrequently and on short-notice, generally in winter and spring. The expert panel report (Berger, 2007c) and Chapter 7 provide additional information about the frequency and timing of boatable flows.
- Most boaters are unlikely to camp on their trips and would probably not boat all three reaches in a single day (although this has apparently been done). During the expert panels, the Rock Gorge / Nicholson Fields reaches took a full day, while Chattooga Cliffs and Ellicott Rock were run on the same day.
- Based on information about lower river boaters (Townsend, 1982; Dye & Burnett, 1994; Moore & Siderelis, 2003) boaters value the same attributes as other upper river users: a sense of remoteness, spectacular scenery, and few traces of human use. In addition, they are focused on the challenge of running whitewater.
- For some whitewater-oriented boaters, solitude is likely to be important; for others, high quality boating can occur in a more “social” (higher density) setting. Boaters are generally likely to travel in small groups of 2 to 5 (based on use data from the Lower Chattooga).

Scenic-oriented boating / tubing

It is possible for less skilled boaters using open canoes, tubes, or other craft to run some segments of the Upper Chattooga that lack more challenging rapids. For example, the 1971 study report noted that the lower gradient reach from Lick Log Creek to Highway 28 was “easy for the inexperienced canoeist” (USFS, 1971, p. 75). Other short segments have similar characteristics, although all have access challenges.

- The roughly 4 mile Nicholson Fields reach from Lick Log confluence to Highway 28 is probably the most likely scenic-oriented boating trip. It is accessible by trail from the Thrift Lake trailhead (about 0.75 miles, all downhill) with a take-out at Highway 28 or the Section II boat launch, about a mile and half downstream.
- There are 2.1 miles of Class I-II water from the East Fork confluence to Burrells Ford, but this involves a substantial carry to the put-in (2.5 miles downhill from the Walhalla hatchery or 2.1 miles up from Burrells Ford). This is likely to limit use to inflatable kayaks or “pack rafts” (only the former are common in the Southeast U.S. at this time).

- Boaters could put-in at Burrells Ford and float about two miles to the start of the rapids above Big Bend Falls and then walk back. This is also likely to limit use to boaters with lightweight craft and a willingness to carry their boats back to the put-in.
- Scenic-oriented boating on these lower gradient segments is probably possible at lower flows than whitewater-oriented boating, and would be available more frequently through the year. Chapter 7 has additional information about flows and boating.
- Important attributes of scenic-oriented boating trips would likely be similar to those of other backcountry opportunities – a sense of remoteness, scenery, lack of signs of human use, etc. Running challenging whitewater is probably less important to these boaters (although Class I-II rapids may be challenging in carry-in craft), while solitude may be important for some.
- All three low gradient segments described above might be used for boat-based fishing (if allowed), but because the Upper Chattooga is generally wadeable, a boat is not necessary to access fishable water. Inflatable kayaks, pack rafts, “fish cats,” or float tubes are potential craft for this use.
- If boating were allowed on the Upper Chattooga, some people might be interested in tubing short reaches of the river in summer. Candidate locations include very short segments on either side of Burrells Ford (e.g., within a mile or so), or the segment just upstream from Highway 28. All have low gradients and some longer runs and pools that would provide good tubing if there was sufficient flow (and tubing were allowed).
- Family groups at Sliding Rock and Burrells Ford occasionally use water mattresses and similar “waterplay” toys that could technically be considered boats (but are usually used at a single location). For the purposes of this analysis, these opportunities have been included with general frontcountry recreation.
- Scenic boating use of these short segments raises a management concern if some users mistakenly continue their trips into the more challenging whitewater reaches. A pair of tubers in 2005 apparently started a trip on a tributary to the Upper Chattooga believing it was Section 1, and they had to be rescued. Inexperienced boating groups have also occasionally launched from Burrells Ford without realizing they would encounter Class IV-V rapids; they have had to portage their boats back out upon reaching Big Bend Falls (Hedden, 2007). These events indicate that some users can make errors even with a well-publicized boating closure; allowing experienced boaters to use the reaches could conceivably exacerbate this problem.

Other potential opportunities

There are other potential opportunities that could occur in the Upper Chattooga corridor. Some are currently prohibited (e.g., horse riding, mountain biking, ATV riding) and have not been contested during the recent Sumter Forest Plan revision. Others have not yet become popular in the region (e.g., “canyoneering”) and are unlikely to become a major issue for Chattooga management during the current planning cycle. We have mentioned these for completeness, but they are not a focus of additional analysis.

Opportunity “importance”

Stakeholder discussion has occasionally examined the relative “importance” of one type of opportunity vs. another on the Upper Chattooga by highlighting their relative demand, scarcity, or

number of potential substitutes in the basin or the region. Some data from specific studies or input from stakeholders or the public have partially addressed these issues.

- A pair of studies explored “substitutability,” “involvement,” and “place attachment” for Chattooga non-commercial whitewater boaters (on the lower river) and trout anglers (who might use the entire river, but probably focus on the upper river) (Backlund, 2002; Hammitt et al., 2004; Bixler & Backlund, 2002). Additional analysis compared these two groups on several demographic and place attachment variables (Vagias, Powell, & Haynie, 2006).

Majorities of both groups reported the river was important to them and various measures of place attachment were strong. Both groups could identify potential substitutes (boaters listed 37; anglers listed 40), but “similarity rankings” indicated that most were not good substitutes for the Chattooga.

There were some differences between the two groups. For example, more boaters reported the Chattooga was the best regional river for their activity (64% compared to 23% of trout anglers), and there were statistically significant differences on several “involvement” and “place attachment” dimensions (with boaters generally showing stronger attachment than anglers). There were also some age and experience differences (anglers were generally older but used the Chattooga less often).

Taken together, results led researchers to conclude that boaters’ more frequent use may lead to stronger place bonds (Vagias, Powell, & Haynie, 2006), but we would qualify these findings. One problem is that the two groups were sampled differently (boaters via permits from known visits; anglers via a census of two local Trout Unlimited chapters); because a “wider net” was cast across the angler population, it may have included fewer avid Chattooga anglers. In addition, some of the involvement and place attachment variables were statistically but not substantively different (e.g., 4.39 vs. 4.61 on a five point “importance”). Finally, as noted above, boaters were rating the Lower Chattooga only (because they can’t currently boat the Upper Chattooga), and it is unclear whether their assessments would apply to the upper river.

- A comparison study of campers using the walk-in campground at Burrells Ford vs. backpackers in the Ellicott Wilderness (Cavin, 2004) shows little “cross-use” of these locations, different preferences for amenities while camping, and some differences in their motivations (e.g., Ellicott Rock users were more interested in solitude than Burrells Ford users). Taken together, these findings indicate different opportunities with different user populations (even though many reported a willingness to use another site as a substitute when asked directly).
- At the July 2006 public meeting (and on its website), the Forest Service requested stakeholders and the public to provide names of similar rivers to the Upper Chattooga for comparison purposes. While people were able to list multiple streams, many comments highlighted the uniqueness of the Chattooga.

Opportunities conclusions

There are probably differences between users engaging in existing or potential recreation opportunities on the Upper Chattooga, but there are also similarities. For example, most appear to value the natural environment, lack of development, lower density recreation, and opportunities for solitude.

Following from standard recreation management principles (Manning, 1999), it makes more sense to clarify characteristics of higher quality opportunities than to attempt to assess whether one is “better” or more important than another.

High quality versions of most opportunities on the Upper Chattooga are available on other rivers in the region, but this does not diminish the high value that many users place on the Upper Chattooga trips (or potential trips).

There is little specific information about relative demand for different types of recreation opportunities on the Upper Chattooga. Even if such information existed, it would be unlikely to be the “deciding factor” in the current planning process because it does not consider the range of other information available (use patterns, impacts, actions that could be used to mitigate impacts, availability of other resources, etc.).

Most recreation opportunities on the Upper Chattooga have active stakeholders that have become involved in this planning process, so decision makers will need to reckon with multiple groups advocating for their recreation interests.

4. Use Information

This chapter summarizes information about current use levels and trends for existing and potential recreation opportunities. The chapter focuses on the Upper Chattooga, but a summary of Lower Chattooga use information is provided for context.

Concepts and methods

By definition, recreation capacity studies pay attention to use information; carrying capacity is defined as the level of *use* beyond which impacts exceed standards (Shelby and Heberlein, 1986). Thirty years of capacity research shows that other factors besides use levels affect impacts, but use levels “drive” many impacts and are an integral part of recreation management.

Most recreation use information is reported for large areas (e.g., for a Wilderness Area) or for long periods of time (e.g., for the entire year), giving little insight about impacts at specific times or locations. For most impacts, it is important to focus on more specific use measures, each of which must specify units (e.g., user days, people, or trips), timing (e.g., at one time, per day, per week, per month, per season), and location (e.g., at a launch area, in the entire segment, at specific attraction sites). For the Upper Chattooga, “at one time” estimates for specific areas are most relevant.

The Forest Service currently monitors boating use on the Lower Chattooga through a mandatory registration system, but until this year had not systematically monitored fishing, hiking, swimming or other uses on either the upper or lower river. DNR-led creel census efforts for the Upper Chattooga (e.g., GA DNR roving creel observations in 1987-1989; SC DNR front country angling surveys in 1999-2000, and GA DNR angler diaries in 2004-2005) provide other useful estimates, but they are limited to angling. To address these information gaps and summarize the overall recreation use situation, the Forest Service initiated four data collection efforts:

- A limited use monitoring program with public volunteer and agency components. These *spot counts* focused on “at one time” tallies of vehicles at access areas.
- A review and summary of *existing use information* from creel surveys, angler diaries, the lower river boater registration program, and other use information available from previous user surveys.
- A “*use estimation workshop*” to elicit and document “professional judgment” estimates about use levels and patterns from experienced agency staff when other data were not available.
- A review of *national or regional surveys of recreation use trends* to anticipate changes in future use levels.

The Data Collection Implementation Plan (or related reports) describes these methods in greater detail; interested readers should review the original sources. The following bullets summarize how use information was collected and analyzed:

- The most reliable upper river use information comes from a systematic *frontcountry creel survey* conducted by SC DNR in 1998-99. This is the only “recent” use monitoring program in the upper river, but it is limited to frontcountry angling at Burrells Ford and Highway 28.

- Reliable use information is also available from a roving *backcountry angling creel survey* conducted by GA DNR in 1987-89, but it is probably not recent enough for estimating current use levels. In general, we assume this provides a “floor” at best.
- There is no creel or other use information for North Carolina segments; in general, angling use on these segments is thought to be light (Bessler, 2007).
- Various *studies* have utilized some on-site sampling that might have been used to estimate use levels, but reports do not provide sufficient information to make this assessment (and the researchers have not provided the sampling data sets). The present report uses these studies to understand user and trip characteristics (e.g., group sizes, trip lengths, proportion of hikers vs. backpackers) rather than use levels.
- The limited use monitoring or *spot count program* initiated in August 2006 was a cost-effective effort designed to provide information about more locations and types of use. However, it has several limitations, including: (1) data are only available from August 2006 through January 2007, although the program will continue through July 2007; (2) it generally focuses on vehicle counts at trailheads, and thus has limited ability to describe the number of people (without a reliable “people per car” multiplier); (3) vehicle counts do not provide specific information about where people go (e.g., upstream or downstream at Burrells Ford) or what activities they are doing (e.g., fishing or hiking); (4) it stratified sampling days by weekends (defined as Sat & Sun) and weekdays (defined as Tuesday-Thursday), but offers no information about Mondays and Fridays; the purpose was to examine the range of “at one time” use levels on weekdays and weekends, not to sum estimates across a season or year for cumulative totals.
- The *use workshop* estimates were an exercise in “group thinking,” where experienced agency resource staff discussed their knowledge and tried to reach consensus on estimates for opportunities and locations. Participants recognized that some estimates were less precise than others, and expect to revise them as spot count or other information becomes available through the remainder of the Chattooga capacity process. In the absence of other information, workshop data describe general use patterns and the relative ranges of use.
- *Use information has generally not been tallied for a year* because those time frames are not particularly useful for making capacity decisions in this setting. In general, “at one time” estimates are more useful for understanding critical impacts (encounters, camp occupancy, etc.).
- In general, analysis focuses on “*people at one time*” (*PAOT*) for *frontcountry areas and fishing opportunities*, because that measure appears to drive important impacts (numbers of people in view, competition for fishing space) for those opportunities. However, the analysis focuses on “*groups at one time*” (*GAOT*) for *hiking and backpacking/camping* because that variable is more relevant for impacts (e.g., campsite occupancy, trail encounters).
- With all methods, the goal is to understand likely *use patterns, peaks, and general averages*. There is likely to be variation across all estimates, but Upper Chattooga use information is not extensive enough to carefully examine this variation.

Existing use

Grimshawes Bridge / Sliding Rock Area

- Use at this frontcountry site focuses on swimming or relaxing at Sliding Rock. There are distinct summer (especially July and August) and weekend peaks.

- This site probably has the highest concentrated use in the entire corridor. Workshop estimates suggest as many as 70 people may visit at one time on summer weekends, but average summer peaks range from 20 to 40 PAOT.
- In cooler months, workshop data suggest 2 to 15 PAOT may use this site, with smaller differences between weekdays/weekends. Angling use at this site rarely exceeds more than a few anglers. During spot counts from October through January, no more than 6 vehicles have been counted, with the average less than one.
- *Other workshop notes:* Most users appear to be family groups. Length of stay is usually less than a couple of hours in summer (swimming and relaxing) and less than a half hour in cooler months (with viewing the primary activity).

Chattooga Cliffs Segment

- Use in this reach peaks from May through August, and again during fall colors. It also has weekend peaks. Overall, this reach generally sees relatively light use compared to others.
- Workshop estimates suggest as many as 10 groups may use this reach at one time during peak summer weekends, but more common averages are 3 to 6 groups in high use months and 1 to 3 groups in lower use months. The majority of these groups are day hikers, with an occasional “through hiker” backpacking group.
- Spot counts from October to January showed no more than 4 vehicles total at the two trailheads (Chattooga Trail and County Line), and usually 1 or 0. However, some hikers access the reach from Bull Pen Bridge (discussed below).
- Backcountry angling use rarely peaks at more than 3 PAOT, but may average 1 to 2 through much of the year. The highest use for angling is from March through October.
- *Other workshop notes.* There are few campsites in the reach. Hiking group sizes tend to be small (1 to 3 people), but occasionally may include larger or organized groups of 8 to 10. About half of all anglers fly fish. These estimates do not include use on the 1.7 miles of private land in this reach.

Bull Pen Bridge Area

- Frontcountry use in this area peaks in mid-summer and during fall color season. Use is often focused on brief sightseeing visits (from the bridge), which peak on weekends.
- Based on workshop estimates, peak use times in summer may have more than 20 PAOT, but usually average much less. Cooler months will average between 5 and 15 PAOT, but are probably lower from November to February.
- Spot counts from October through January never exceeded 8 vehicles (a weekend in October); on other weekends, counts never exceeded 3, and averages were 1 to 2.
- *Other workshop notes.* This is a well-publicized site on tourist maps for viewing cascades; length of stay is usually less than a half hour. A small proportion of users may fish.

Ellicott Rock Segment

- Use in this reach peaks from May through August, and again during fall color season. It also has a weekend peak.

- This reach generally has the highest day hiking and backpacking use levels on the Upper Chattooga. Workshop estimates suggest as many as 20 day hiking groups and 10 backpacking groups (30 total groups) on a busy summer weekend. However, non-peak summer weekends average less than 10 day hiking groups and 5 backpacking groups (15 total groups). Summer weekday and shoulder season averages are generally less than 4 hiking groups and 2 backpacking groups (6 total groups).
- During winter months (November to February), workshop estimates suggest day hiking use may reach 6 GAOT on a weekend, but will average less than 2. As many as 3 groups may camp over a weekend during winter, but averages are probably closer to 1.
- Backcountry angling use also occurs on the reach. Based on 12 angler diary reports in 2004 and 2005 (most in April and May), an average of 2.3 other anglers were observed in this segment (with a high of 6 and some days with none). Workshop estimates suggest there are seasonal and weekly patterns among backcountry angling, with an average of 4 to 6 PAOT in early summer, but peaks as high as 10 PAOT. During winter months, the number of anglers is generally under 4 PAOT.
- Spot counts from August through January showed no more than 9 vehicles at the Fish Hatchery (trailhead via the East Fork Trail) and no more than 32 at Burrells Ford (the other commonly used trailhead into the Wilderness). More common vehicle counts at trailheads during this period ranged from 2 to 20, with highest use levels on weekends in August. Interpreting these counts for the Ellicott Rock segment is challenging because some users may stay in the Burrells Ford area, and others may be downstream in the Rock Gorge segment.
- A 2003 survey of Ellicott Wilderness backpackers showed group sizes average 5.8 people and trip lengths average 2.5 days (Cavin, 2004).
- A 1994-95 survey of Ellicott Wilderness users (includes hikers, backpackers, and anglers) showed an average group size of 4.5 (Rutlin, 1995). The study showed 62% were day users and only 15% spent more than one night. Among day users, nearly half stayed just a few hours, 42% spent half a day, and only 13% spent the full day.
- The 1994-1995 study reported primary activities for the sample: 45% were primarily day hikers; 30% were campers; 20% were anglers, and 3% were wildlife viewers. Because people engaged in multiple activities, participation rates were higher; about 75% reported day hiking, 45% viewed wildlife, 38% camped, 34% fished, and 4% swam.
- *Other workshop notes.* Most hiking use is focused on the designated trails between Ellicott Rock, Burrells Ford, and up the East Fork to the Fish Hatchery, all of which are relatively close to the river. Off-trail use in the Wilderness is considered light.

Burrells Ford Area

- Frontcountry use in this area peaks in mid-summer and during fall color season. Use is multi-faceted, and includes frontcountry fishing, sightseeing, picnicking, swimming, camping at a walk-in campground, or staging for trips into the Ellicott Rock reach or downstream toward the Rock Gorge.
- Based on workshop estimates, general frontcountry use at this site may average 50 PAOT on summer weekends and 20 PAOT on weekdays, but is considerably lower in the off season (less than 10 on winter weekends and 5 on winter weekdays). This does not include people camping at the campground.

- Workshop estimates suggest the campground may average 25 to 30 groups per night on mid-summer weekends, but 10 to 15 groups on weekdays. In the off-season months (November to May), campground occupancy average 0 to 5 groups on weekdays, and 2 to 8 on weekends.
- Spot counts from September through January never exceeded 32 vehicles (a weekend in October), with less than 15 during September-October and less than 5 from November to January.
- 1998-99 frontcountry creel survey data showed peak angling use at Burrells Ford may peak as high as 38 PAOT in spring and summer, but averages were about 15 in the spring and less than 10 in summer. In the fall, peaks were about 25 but averages were about 11. In winter, peaks were as high as 10, but averages were about 4. Contrary to workshop estimates, data show few differences between weekdays and weekends for frontcountry angling.
- A 2003 survey of Burrells Ford campers (Cavin, 2004) showed a group size average of 5.0 (smaller than Ellicott Wilderness campers) and trip length average of 2.9 days (slightly longer than Wilderness campers). It also showed that 71% reported taking day hikes while 59% reported fishing. Only 5% reported that hiking was their primary activity, while 33% said fishing was their primary activity.

Rock Gorge Segment

- Hiking use in this reach peaks from May to August and during fall color season. It also has a weekend peak. Angling peaks in spring and early summer, but also has a fall season.
- This reach generally has lower use than the Ellicott Rock segment (but higher than Chattooga Cliffs). Workshop estimates suggest as many as 15 day hiking groups and 10 backpacking groups (25 total) may use the reach on a busy summer weekend, but this is a longer reach. Non-peak summer weekends average less than 10 day hiking groups and 5 backpacking groups (15 total). Off-season averages were generally less than 7 hiking groups and 4 backpacking groups on weekends and about half that on weekdays.
- Backcountry angling use also occurs on the reach. Based on 42 angler diary reports in 2004 and 2005 (most from October-May), an average of 2.1 other anglers were observed AOT in this segment, although zero anglers were reported on several days (and three days had unusually high reports of 12 to 15, possibly from counting anglers in the DH segment too).
- Workshop estimates suggest there are seasonal and weekly patterns among backcountry angling, with an average of 3 to 6 PAOT in April and May, but less than 2 PAOT in other months.
- Spot counts from August through January showed no more than 5 vehicles at the Big Bend Falls Trailhead, with an average of less than 1. Vehicle counts at Thrift Lake trailhead exceeded 20 on one November weekend, but averaged about 3 for the rest of the sampling period. Interpretation of counts at Thrift Lake is challenging because some users may use the Nicholson Fields reach.
- *Other workshop notes.* Group sizes are likely to be similar to Ellicott Rock users, but weekday groups tend to be smaller (usually 1 to 2 people compared to 4 or 5). About half of the backcountry anglers use spinners or bait, and half use flies.

Nicholson Fields / DH Segment

- Use in this segment focuses on backcountry fishing, although hikers and backpackers travel through it on their way to other segments. Angling use peaks during the DH season from November through May, and there is also a weekend peak.
- Based on 79 angler diary reports in 2004 and 2005 (all from November to May), an average of 4.1 other anglers were observed in this segment, although no anglers were reported on some days and only 6% of days had more than 10.
- Workshop estimates suggest higher use levels than angler diary information. Based on these, weekend peaks may be as high as 30 PAOT in early fall or late spring, although average weekends are usually less than 15 PAOT. In contrast, weekday peaks rarely exceed 10 PAOT and weekdays average 1 to 5 PAOT (which fits with angler diary reports, which may have over-represented weekdays).
- Spot counts from August through January showed over 30 vehicles at the Highway 28 trailheads on one November weekend, although averages were generally 5 or less.

Highway 28 Area

- Frontcountry use in this area focuses on fishing, although there may be some swimming and picnicking as well.
- 1998-99 frontcountry creel survey data showed that angling use at Highway 28 may peak as high as 15 anglers in spring or summer, but it averaged 4 to 6 PAOT on weekends and 1 to 3 on weekdays in these periods. In fall and winter, peaks were less than 5 and averages ranged from 1 to 2 PAOT.
- Workshop estimates suggest that frontcountry use at Highway 28 may peak about 5 PAOT on summer weekends, but usually averages 2 to 4 PAOT. In spring and fall, frontcountry general recreation use levels are usually less than 3 PAOT.
- As discussed above, spot counts from August through January showed over 30 vehicles at the Highway 28 trailheads on one November weekend (supporting workshop estimates), although averages were generally 5 or less. Most of this use is probably linked to DH rather than frontcountry use (note: counts have not yet occurred outside the DH season).

Lower Chattooga Boating Use

Although this report focuses on the Upper Chattooga, it is useful to briefly review boating use information from the Lower Chattooga for context. A summary of Lower Chattooga boating use from 1988 to 2005 was recently completed (Vagias, 2006). The following are based on findings from that report (with some additional information from the Sumter National Forest Plan).

- The number of boaters on the Lower Chattooga since 1988 has ranged from about 50,000 to 80,000 per year, while the number of trips has ranged from about 4,000 to 8,500. In recent years, annual use has been about 60,000 people and 6,200 trips.
- About 70% of boaters but only 34% of trips are commercial; this is because commercial trips are considerably larger (average: 24) than private trips (average: 4). A third type of trip, “instructional clinics,” represents about 4% of trips and people using the river.
- There is much higher use during summer months. About 63% of boating occurs from May through August. About 8% occurs from November through February.

- About 90% of commercial boaters use rafts. Private boaters use kayaks (66%), canoes (21%), rafts (7%), inner tubes (4%) or other craft (3%).
- Use levels on segments vary, with most trips occurring on Sections 3 (50%) and 4 (38%). Only 2% of trips occur on Section 1 and 10% on Section 2.
- There is little commercial use on Sections 1 and 2, but it comprises 65% of people and 25% of trips on Section 3 and 85% of people and 46% of trips on Section 4.
- Across the 1988 to 2005 period, 120 to 170 commercial boaters and 45 to 50 take private trips per day on Section 3 in peak summer months. The total number of boaters per day on Section 3 averages about 200 in the highest use month.
- On section 4, there are 110 to 175 people commercial boaters and 15 to 25 private boaters per day; the total number of boaters averages about 200 people per day in the highest use month.
- Daily averages across a month can be misleading because there appears to be a substantial weekend peak, particularly for private boaters. A daily analysis of Section 4 private boating use in recent years is provided in a later section on potential Upper Chattooga boating use (see below).
- The current Forest Plan (USFS, 2004) includes limits for commercial use and targets for private use (the latter have generally not been exceeded). The commercial use limits vary by segment, season, weekends/weekdays, and flow levels; private limits vary by segment and weekend/weekdays.
- In general, commercial use limits range from 4 to 7 trips per day on Section 3 and 4 to 6 trips per day on Section 4. There are also “people per day” limits ranging from 160 to 280 people on Section 3 and 160 to 360 on Section 4 (depending upon type of day, season, or flow), although these are less often reached because commercial trips seldom run at the maximum commercial group size limit of 40.
- Private use limits (which have not been exceeded often enough to trigger a limited entry permit system) are 125 people (weekdays) and 175 (weekends) for Section 3; they are 75 (weekdays) and 160 (weekends) on Section 4.

Other Lower Chattooga Use

The spot count program included counts at several lower river locations. During the use estimation workshop, agency staff also made use estimates for non-boating activities on the Lower Chattooga. Some highlights:

- Spot counts at the West Fork parking lots (Section 1 use indicator) showed a maximum of 6 vehicles and an average of less than 2 from August through January. There were slightly higher counts on weekends, but no obvious seasonal pattern. Workshop estimates for frontcountry recreation on the West Fork indicate that as many as 30 PAOT may use this area in peak summer months, although weekend averages are closer to 20 and weekday averages are under 10.
- Spot counts at Earls Ford (start of Section 3) showed a maximum of 6 vehicles and average of 1 to 3 vehicles parked in this area from August through January. There was slightly higher use in November and January, and slightly higher use on weekends.
- Workshop estimates for Section 3 indicate that over 100 PAOT may engage in frontcountry recreation (swimming, relaxing, warm water fishing) on peak summer weekends, but average weekend levels are likely to be about 80 PAOT, with less people on weekdays. For the same

reach, they estimate that trail users (hikers, backpackers, and horseback riders) may peak about 18 PAOT on summer weekends, but average about 10 to 12 on other days.

- Spot counts at Highway 76 (end of Section 3, start of Section 4) showed a maximum of 25 vehicles and averages of 5 to 12 vehicles from August through January. There were higher counts on weekends in some months, but not in others. The highest use month was October.
- Spot counts at Woodall Shoals (in Section 4) showed a maximum of 13 vehicles and averages of 1 to 4 vehicles from August through January. There were higher counts on weekends in some months, but not in others. The highest use month was October.
- Workshop estimates for all of Section 4 indicate that about 30 PAOT may engage in frontcountry recreation (swimming, relaxing, warm water fishing) on peak summer weekends, but average summer levels are likely to be about 10 to 15 PAOT on typical weekdays and weekends, respectively.
- Spot counts at Tugaloo Lake (Take-out for Section 4) showed a maximum of 8 vehicles and averages of 1 to 7 vehicles from August through January. There were higher counts on weekends in October and November, but not in other months. There was a far greater decline in use after October at this site compared to others. Note: Use at this site may also reflect some “downstream” reservoir use, which confounds river estimates.

Estimating potential whitewater boating use

It is challenging to estimate use for recreation opportunities that are not currently provided, but it is possible to define potential ranges based on other similar rivers and specific characteristics of the Upper Chattooga. Information that helps define these ranges for the most likely boating use (whitewater boating for highly skilled boaters) includes:

- There are several variables that affect use levels. A partial list might include proximity of population centers, quality of the boating run, difficulty of the run, quality of the scenery or other setting characteristics, length of the shuttle, availability of facilities (e.g., parking areas, rest rooms, nearby camping), availability of flows, availability of other rivers during the same time period (competing substitutes), crowding, fees, and permit requirements. It is beyond the scope of this analysis to comprehensively assess how these variables may influence potential Upper Chattooga boating use, but we have tried to consider them.
- Section 4 on the Chattooga is the river segment with reliable use data that is most similar to the challenging whitewater reaches on the Upper Chattooga. Section 4 is roughly the same distance from population centers, is commonly boated as a day run, has considerable private use, and requires at least Class IV skill (there is some debate whether rapids are Class IV or V, but they appear to be slightly easier than several Upper Chattooga rapids based on the expert panel report).

A limitation of this comparison is that Section 4 is predictably boatable year round, although sometimes flows are less than optimal. In contrast, the Upper Chattooga segments may be boatable for less than 31% of the year, with only about 10% of days (34 total) providing higher quality whitewater flows (see Chapter 7). More importantly, boaters must be opportunistic to use the river when rain events provide sufficient flow (they typically occur for only a day or two at a time, and with little “notice”).

An analysis of Section 4 private use from 2003 to 2005 is given in Figure 3. It shows the median number of boaters per day for each month for 2003, 2004, 2005, and for all years

from 1988 to 2005 combined. It also shows the maximum number of boaters per day in each month for 2003-2005.

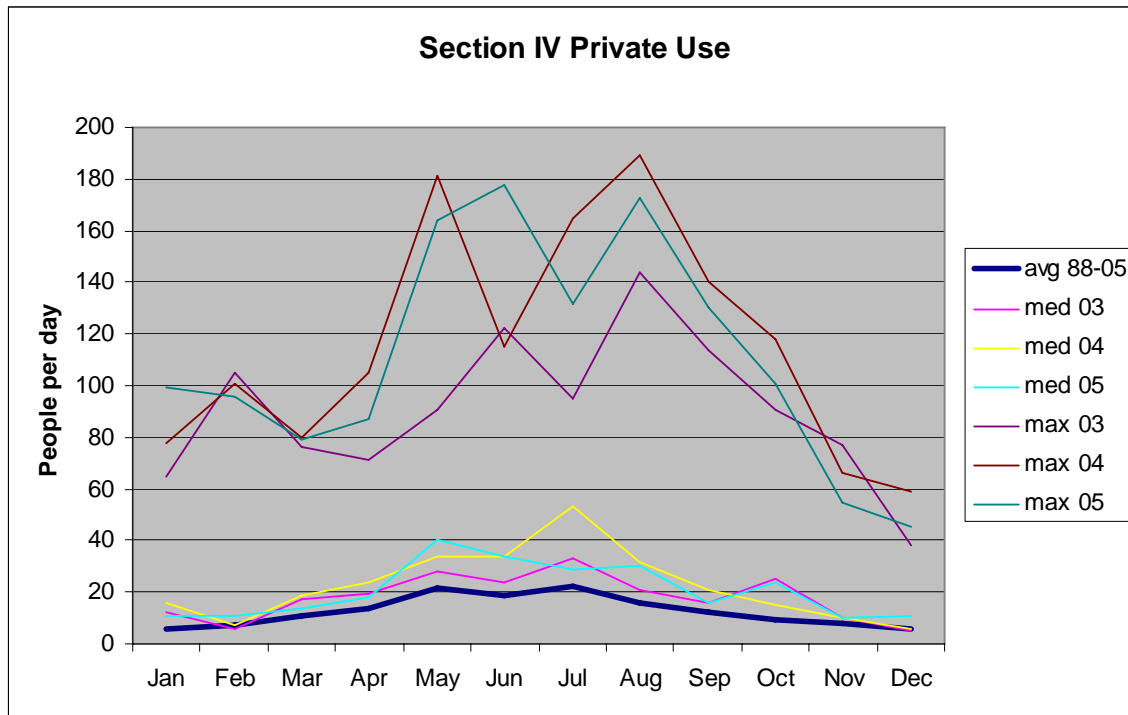


Figure 3. Median and maximum private boaters per day on Section 4 of the Chattooga River.

Maximum use levels in Figure 3 show that private use can exceed 180 boaters on the highest use summer days, and can reach 100 from January through April. These high use days were invariably on weekends or holidays.

Most days have much lower private use levels, typically 30 to 50 boaters per day in late spring and summer, and 10 to 20 in other months. The long-term average from 1988 to 2005 (from Vagias, 2006) appears somewhat lower than from 2003-2005, which suggests that private use levels may be increasing on this reach.

- Overflow Creek, a tributary of the West Fork Chattooga, offers another river for comparison. This “creek” segment appears to be slightly more difficult than Upper Chattooga segments, and may have boatable flows slightly less often, but it is well known for its outstanding whitewater. Boaters carefully watch flow indicators to take advantage of rare boatable flows.

There is currently no documented information about the number of boaters who run Overflow Creek. The Forest Service recently extended (November 2006) its self-registration system to Overflow, but there have been few boatable days this winter and spring. Anecdotal information from several sources suggests that 30 to 40 boaters per day might boat the reach under “ideal” conditions (predicable, boatable flows and good weather) but more common use levels are 10 to 20 boaters on the infrequent days when boatable flows occur.

- Wilson Creek, NC, with a short Class IV gorge, offers another comparison river. It has whitewater of similar difficulty to the Upper Chattooga, is about the same distance from population centers, and is boatable about 50 days a year (requiring careful attention to indicator gages and opportunistic trip planning). However, it is unlike the Chattooga because it has easier access (a road along most of its length), some commercial rafting use, and a less

remote setting. While formal use statistics are not available, high use days may peak at 100 private boaters (warm weekends), but more commonly range between 20 and 50 (Hendricks, 2007).

- Estimating boating use on the Upper Chattooga (if it were allowed) are particularly challenging because of potential “latent demand” from the 30 year closure on boating use and the publicity surrounding the current study and planning process. The publicity from the expert panel fieldwork alone led to hundreds of message board postings on boater and angler websites (e.g., BoaterTalk, North Georgia Trout On-Line) debating various issues. Although not all boaters who participated in these internet debates would or could boat the river if it were opened, the amount of attention it has generated is likely to “artificially” increase demand in the short term.
- Stakeholders have debated the length of time for more “typical” boating use patterns to appear (if boating were allowed); it probably depends on how often the river is boatable and what further publicity is generated as initial boaters run the river. Initial flow releases for boating after dam relicensing have attracted hundreds of boaters (e.g., Tallulah, North Fork Feather, Cheoah), but these “events” have planned flow releases and known boatable flows that are not comparable to the situation on the Upper Chattooga (where flows are unregulated and boaters must be opportunistic). We estimate that any “latent demand effect” is likely to diminish substantially after one year if boating were allowed (assuming more than 30 boatable days occurred in that year), but the effect would probably persist for two to three years (if boating were allowed).
- For the sake of discussion, we have tried to “guesstimate” maximum potential use levels for the Upper Chattooga, assuming no use limit and “no latent demand effect” (Table 1). We have assumed use on the Upper Chattooga would be higher than Overflow Creek (which is more difficult and is boatable less often), but lower than Wilson Creek or Section 4 on the Lower Chattooga (which are less difficult and have easier access).
- Estimated numbers of boaters are highest for the Ellicott Rock reach (because it has the highest quality whitewater for the length of the run), lower for Rock Gorge (fewer rapids and more flat water), and lowest for Chattooga Cliffs (with potentially difficult access and more portages). Estimates are made for “ideal conditions” on weekdays and weekend days. “Ideal conditions” refer to optimal standard boating flows (see Chapter 7 for a description), reasonable planning horizons (boatable flows were predictable at least a day or two ahead), and reasonable weather. Less than ideal conditions would probably reduce use below the “ideal weekday” level by about half.

Table 1. “Guesstimated” maximum number of boaters per day on Upper Chattooga segments.

| | “Ideal conditions” on a weekend day | “Ideal conditions” on a weekday |
|-------------------------|------------------------------------------------|--------------------------------------------|
| Chattooga Cliffs | 20 | 5 |
| Ellicott Rock | 70 | 20 |
| Rock Gorge | 40 | 10 |

Ideal conditions = Optimal boating flows predictable 2 days in advance, and reasonable weather.

- Considering these numbers and the information from Chapter 7 about flow ranges and boaters’ ability to use them, we have “guesstimated” the total number of boaters that might use the Upper Chattooga in an average water year. Assumptions and “guesstimates” are described below.